CLAIMS

What is claimed is:

1   1.   A method for simultaneous debugging of an electrical design having both an HDL

2   portion and a general programming language portion, comprising:

3   interrupting a simulator handling the HDL portion, the simulator interrupted by an

4   external debugger, the external debugger for debugging the general language portion;

5   handling a simulator request with an external debugger, the external debugger calling

6   a request processing function at the simulator; and

7   executing the request processing function at the simulator to respond to the simulator

8   request.

1   2.   The method of claim 1 in which the simulator request accesses a portion of the HDL

2   portion.

1   3.   The method of claim 2 in which the simulator request accesses HDL signal values.

1   4.   The method of claim 2 in which the simulator request accesses HDL design

2   hierarchy.

1   5.   The method of claim 1 in which the simulator request operates simulator

2   functionality.

1   6.   The method of claim 1 in which the general programming language portion

2   comprises C, C++, or SystemC code.

1   7.   The method of claim 1 in which the HDL portion comprises VHDL or Verilog.

1   8.   The method of claim 1 in which the action of having the external debugger call the

2   request processing function is based upon recognition of a waiting simulator request.

1   9.   The method of claim 8 in which recognition of the waiting simulator request is based

2   upon a message sent to the external debugger.

1   10.   The method of claim 8 in which recognition of the waiting simulator request is based

2   upon a periodic check of a simulator request wait queue.

1   11.   The method of claim 8 in which recognition of the waiting simulator request is based

2   on whether a threshold number of simulator requests are waiting in a simulator request wait

3   queue.

1   12.   The method of claim 1 in which the simulator request is generated at a simulator

2   GUI.

1   13.   The method of claim 12 in which the response to the simulator request is displayed at

2   the simulator GUI.

1   14.   The method of claim 1 in which the external debugger calls the request processing

2   function at the simulator with the following statement:

3   call *expr*

1   15.   The method of claim 1 in which the simulator request is routed through a debugger

2   GUI for the external debugger.

1   16.   The method of claim 1 in which the simulator request is directly routed to the

2   external debugger.

1   17.   The method of claim 1 in which the request processing function is set up ahead of

2   time at the simulator to handle anticipated simulator requests.

1   18.   A method for simultaneous processing of a design that is based upon multiple

2   programming languages, the multiple programming languages comprising a first language

3   portion and a second language portion, in which processing of the second language portion

4   interrupts processing of the first language portion, the method comprising:

5   processing the second language portion of the design causing an interruption of

6   processing for the first language portion;

7   determining whether there are one or more waiting requests for processing of the

8   first language portion;

9   handling the one or more waiting requests for processing of the first language portion

10   by having processing of the second language portion call a request processing function at the

11   first language portion; and

12   executing the request processing function at the first language portion to process the

13   one or more waiting requests.

1 19.   The method of claim 18 in which the one or more waiting requests are for accessing

2 data from the first language portion of the design.

1 20.   The method of claim 18 in which the one or more waiting requests are for debugging

2 the first language portion.

1 21.   The method of claim 18 the act of determining whether there are one or more waiting

2 requests for processing of the first language portion is based upon a message sent to the

3 processing of the second language portion.

1 22.   The method of claim 18 the act of determining whether there are one or more waiting

2 requests for processing of the first language portion is based a periodic check of a request

3 wait queue for the first language portion.

1 23.   The method of claim 18 the act of determining whether there are one or more waiting

2 requests for processing of the first language portion is based on whether a threshold number

3 of simulator requests are waiting in a request wait queue.

1 24.   The method of claim 18 in which the request processing function is called with the

2 following statement:

3   call *expr*

1 25.   The method of claim 18 in which processing the second language portion comprises

2 debugging the second language portion.

1   26.   The method of claim 18 in which the request processing function is set up ahead of

2·   time to handle anticipated requests.

1   27.   A computer program product comprising a computer usable medium having

2   executable code to execute a process for simultaneous debugging of an electrical design

3   having both an HDL portion and a general programming language portion, the process

4   comprising:

5   interrupting a simulator handling the HDL portion, the simulator interrupted by an

6   external debugger, the external debugger for debugging the general language portion;

7   handling a simulator request with an external debugger, the external debugger calling

8   a request processing function at the simulator; and

9   executing the request processing function at the simulator to respond to the simulator

10   request.

1   28.   A system for simultaneous debugging of an electrical design having both an HDL

2   portion and a general programming language portion, comprising:

3   means for interrupting a simulator handling the HDL portion, the simulator

4   interrupted by an external debugger, the external debugger for debugging the general

5   language portion;

6   means for handling a simulator request with an external debugger, the external

7   debugger calling a request processing function at the simulator; and

8   means for executing the request processing function at the simulator to respond to

9   the simulator request.

1   29.   A computer program product comprising a computer usable medium having

2   executable code to execute a method for simultaneous processing of a design that is based

3   upon multiple programming languages, the multiple programming languages comprising a

4   first language portion and a second language portion, in which processing of the second

5   language portion interrupts processing of the first language portion, the method comprising:

6   processing the second language portion of the design causing an interruption of

7   processing for the first language portion;

8   determining whether there are one or more waiting requests for processing of the

9   first language portion;

10   handling the one or more waiting requests for processing of the first language portion

11   by having processing of the second language portion call a request processing function at the

12   first language portion; and

13   executing the request processing function at the first language portion to process the

14   one or more waiting requests.

1   30.   A system for simultaneous processing of a design that is based upon multiple

2   programming languages, the multiple programming languages comprising a first language

3   portion and a second language portion, in which processing of the second language portion

4   interrupts processing of the first language portion, the method comprising:

5   means for processing the second language portion of the design causing an

6   interruption of processing for the first language portion;

7   means for determining whether there are one or more waiting requests for processing

8   of the first language portion;

9   means for handling the one or more waiting requests for processing of the first

10   language portion by having processing of the second language portion call a request

11   processing function at the first language portion; and

12   means for executing the request processing function at the first language portion to

13   process the one or more waiting requests.